FORM NRC-7
(7-78)
10 CFR 110

U.S. NUCLEAR REGULATORY COMMISSION

A CC

APPROVED BY GAO
B-180225(R0362)

APPLICATION FOR LICENSE TO EXPORT NUCLEAR MATERIAL AND EQUIPMENT *(See Instructions on Reverse)*

1. APPLICANT'S USE →	a. DATE OF APPLICATION	b. APPLICANT'S REFERENCE	2. NRC USE →	a. LICENSE NO.	b. DOCKET NO.
	4-14-80	OE-8025		XSOM0400	11002043

3. APPLICANT'S NAME AND ADDRESS — RIS

a. NAME: REUTER-STOKES, INC.

b. STREET ADDRESS: 18530 SOUTH MILES PARKWAY

c. CITY: CLEVELAND — STATE: OHIO — ZIP CODE: 44128

d. TELEPHONE NUMBER *(Area Code – Number – Extension)*: 216-475-3434

4. SUPPLIER'S NAME AND ADDRESS *(Complete if applicant is not supplier of material)* — RIS

a. NAME

1980 APR 21 AM 9 57

b. STREET ADDRESS

EXPORT/IMPORT AND [illegible]

c. CITY — STATE — ZIP CODE

5. FIRST SHIPMENT SCHEDULED	6. FINAL SHIPMENT SCHEDULED	7. APPLICANT'S CONTRACTUAL DELIVERY DATE	8. PROPOSED LICENSE EXPIRATION DATE	9. U.S. DEPARTMENT OF ENERGY CONTRACT NO. *(If Known)*
September 1980	December 1980	90 Days after License	1 year from issuance	

10. ULTIMATE CONSIGNEE — RIS

a. NAME: KOREA ELECTRIC COMPANY

b. STREET ADDRESS: 5, 2KA NAMDAEMOON-RO, CHUNG-KU

c. CITY – STATE – COUNTRY: SEOUL, KOREA

11. ULTIMATE END USE *(Include plant or facility name)*

In-core neutron flux monitoring at KORI no. 1 plant, KORI CHANG AN MYON, YANG SAN-KUN, KYUNG SANG NAM-DU, KOREA

OCTOBER 1980

11a. EST. DATE OF FIRST USE

12. INTERMEDIATE CONSIGNEE — RIS

a. NAME

b. STREET ADDRESS

c. CITY – STATE – COUNTRY

13. INTERMEDIATE END USE

13a. EST. DATE OF FIRST USE

14. INTERMEDIATE CONSIGNEE — RIS

a. NAME

b. STREET ADDRESS

c. CITY – STATE – COUNTRY

15. INTERMEDIATE END USE

15a. EST. DATE OF FIRST USE

16. NRC USE	17. DESCRIPTION *(Include chemical and physical form of nuclear material; give dollar value of nuclear equipment and components)*	18. MAX. ELEMENT WEIGHT	19. MAX. WT. %	20. MAX ISOTOPE WT.	21. UNIT
	~~URANIUM 235 DEPOSITED AS UO_2 ON INTERNAL SURFACE OF~~ REUTER-STOKES. MODEL RS-C6-0201-231 RADIATION DETECTOR. EACH DETECTOR CONTAINS 0.0004 GRAMS URANIUM. FIGURES AT RIGHT ARE FOR THE TOTAL OF 10 DETECTORS TO BE SUPPLIED. VALUE OF EACH DETECTOR IS $4550.00 EACH (U.S.)	~~0.004 GRAMS~~	~~93~~	~~0.0038~~	

22. COUNTRY OF ORIGIN – SOURCE MATERIAL	23. COUNTRY OF ORIGIN – SNM WHERE ENRICHED OR PRODUCED	24. COUNTRIES WHICH ATTACH SAFEGUARDS *(If Known)*
U.S.A.	U.S.A.	

25. ADDITIONAL INFORMATION *(Use separate sheet if necessary)*

SEE ATTACHED ENGINEERING DATA SHEET 9.13

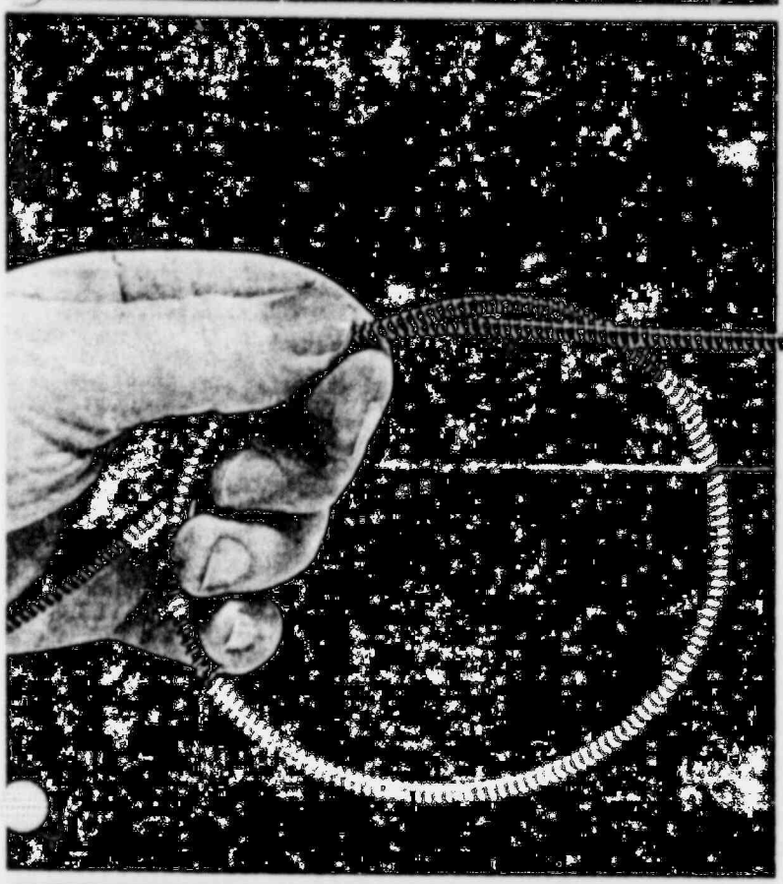
8005210133

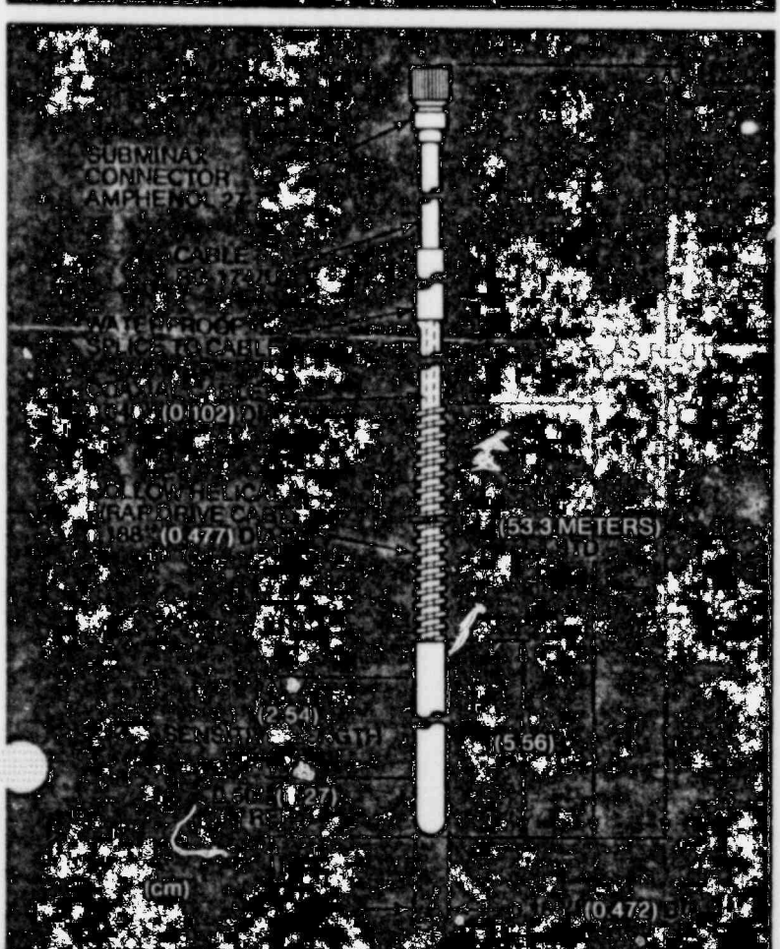
26. The applicant certifies that this application is prepared in conformity with Title 10, Code of Federal Regulations, and that all information in this application is correct to the best of his/her knowledge. Mr. Joseph D. Skarupa

27. AUTHORIZED OFFICIAL	a. SIGNATURE	b. TITLE
	Joseph D. Skarupa	Sales Manager

reuter RS stokes

Engineering Data Sheet 9.13





RS-C6-0201-231 In Core Flux Probe

for use in your WESTINGHOUSE PWR

Complete with Right Hand or Left Hand Drive Cable

Combining the detector with the helical drive cable which exactly mates with your specific movable drive system, Reuter-Stokes offers the complete assembly ready for use.

In 1968, the RS-C6-0201-231 was developed by Reuter-Stokes for the flux mapping systems of Westinghouse-built reactors. It incorporates 14 years of in-core detector experience into an assembly specifically designed to traverse the multi path system smoothly, with accurate output signal and long detector lifetime. It is manufactured and tested to rigid QC requirements for commercial power reactors. Specific design and manufacturing features include:

1. Excellent insulation resistance at temperature providing minimal signal leakage and permitting use over a wide flux/temperature range.
2. Separate sealing of detector assembly and cable assembly to eliminate signal variation at temperature from gas expansion-migration.
3. Design details and proprietary methods of processing to insure high leakage resistance over a long detector lifetime.
4. Carefully matched, machined and bonded components to minimize the possibility of detector failure resulting from insertion and withdrawal.

Following is a partial listing of operating reactors where Reuter-Stokes in-core probes are installed or being installed:

Connecticut Yankee	Point Beach 1, 2
D. C. Cook 1	Prairie Island 1, 2
H. B. Robinson 2	Robert E. Ginna
Joseph M. Farley 1	San Onofre 1
Jose Cabrera 1	Surry 1, 2
North Anna 1, 2	Zion 1, 2

Specifications

MECHANICAL

Maximum chamber diameter	0.478 cm
Drive cable diameter	0.478 cm
Chamber length	5.56 cm
Drive cable length	53.3 meters
Connector	Amphenol #27-7

MATERIAL

Chamber	
Outer shell	304 Stainless steel
Inner electrodes	304 Stainless steel
Insulation	Alumina ceramic
Detector Cable	
Outer sheath	Inconel 600
Center conductor	Inconel 600
Insulation	Al_2O_3
Drive cable	
Helix, lay wires, coil (Note 1)	Carbon steel
Neutron sensitive material	
Description	Uranium enriched 93% in U-235
Total quantity U-235	0.4 mg

MAXIMUM RATINGS

Voltage between electrodes	200 Volts
Temperature	375° C
Thermal neutron flux	2×10^{14} nv
Burn-up life: for 10% decrease in sensitivity	3×10^{20} nvt

IMPEDANCE

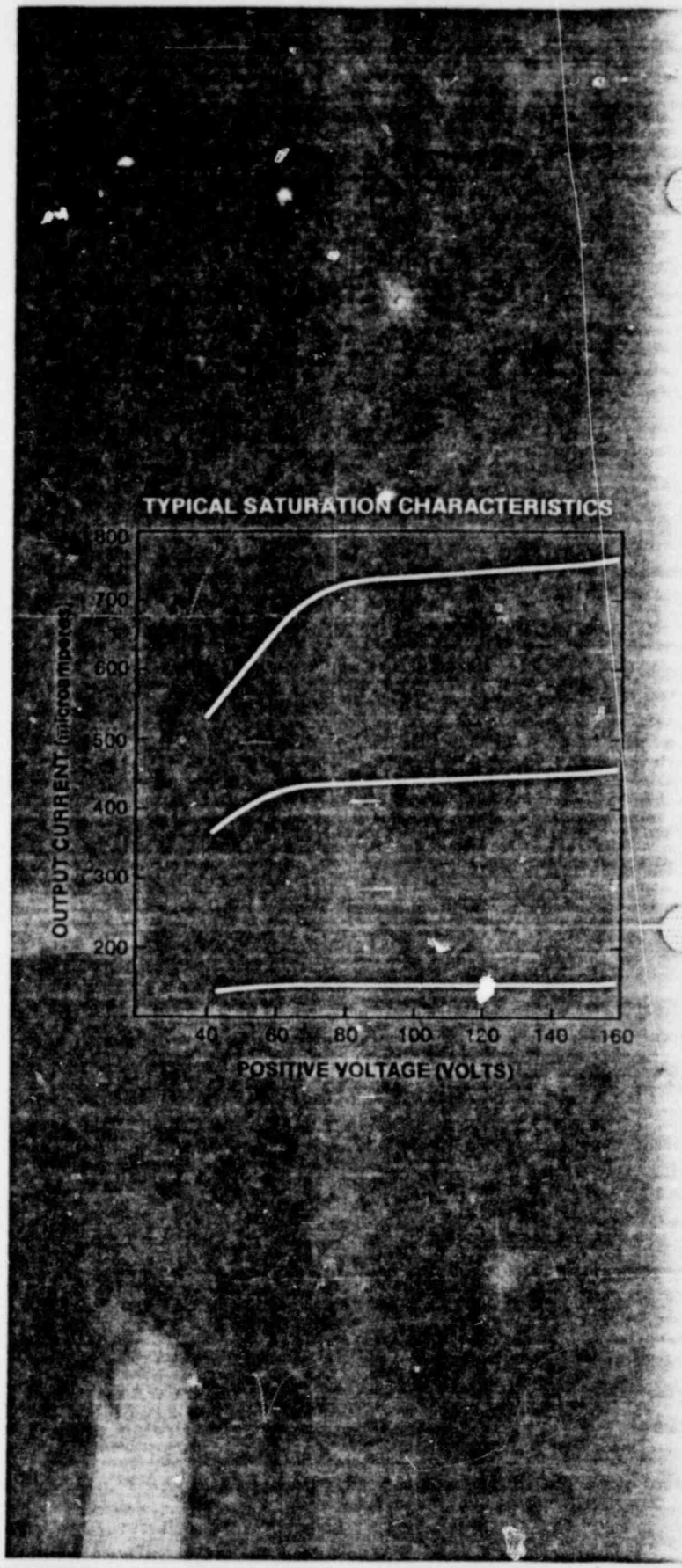
Resistance @ 25° C	$>5 \times 10^{12}$ ohms
375° C	$>10^{8}$ ohms
Capacitance	
Detector plus cable (Std. Lgth.)	16,000 pf

TYPICAL OPERATING CHARACTERISTICS

Voltage	100 Volts
Thermal neutron flux range	To 1×10^{14} nv
Thermal neutron sensitivity (perturbed) (Note 2)	1.5×10^{-17} amp/nv ± 20%
Gamma sensitivity	1.2×10^{-14} amp/R/hr ± 20%

NOTE 1: User must specify whether his system requires right or left hand drive.

NOTE 2: Before shipment sensitivity of each detector is calibrated in a pool-type test reactor with effective cross section of 500 barns and at ~ 10^{11} nv.



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